

U.S. Patent

May 23, 1995

Sheet 1 of 2

5,417,129

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FIG.1

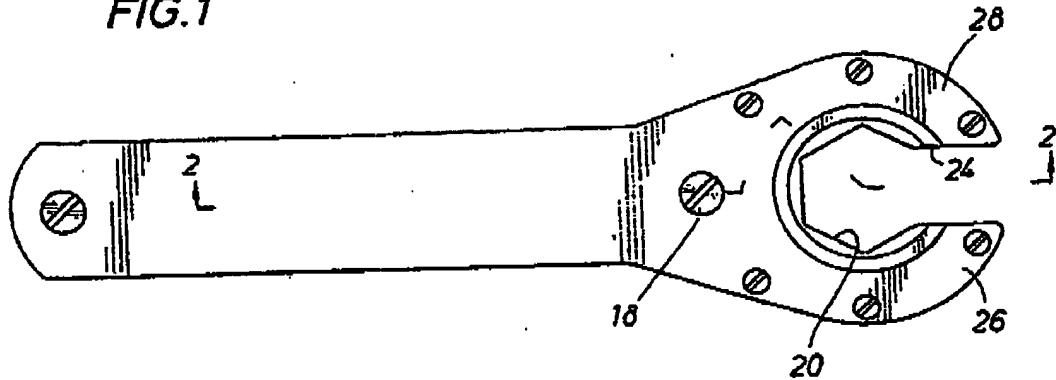
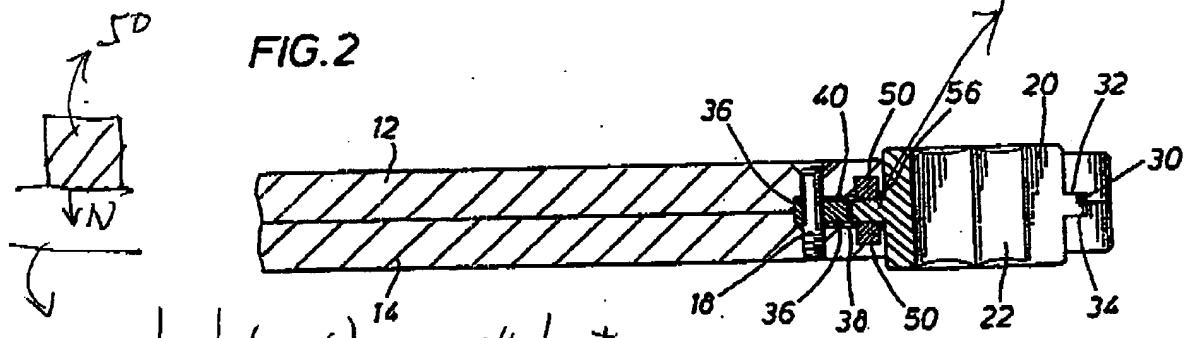
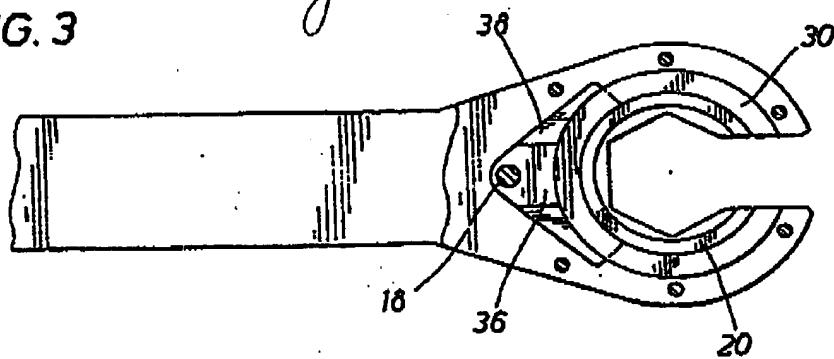


FIG.2



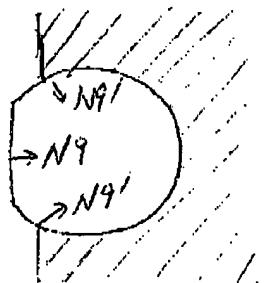
force applied to the ratchet
is not the rotation direction. The twisting force is
small, and thus the efficiency is low.

FIG.3



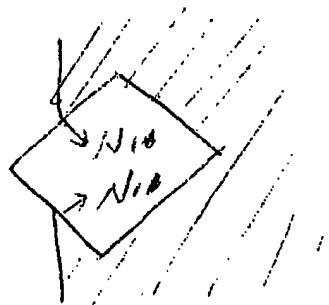
Drawings for Discussion the Novelty
of the Present Invention.

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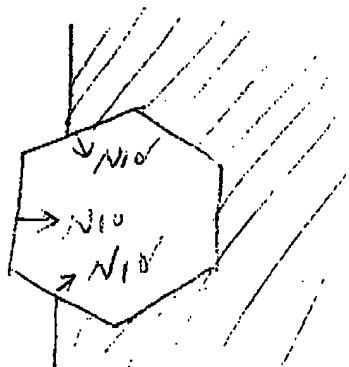
2a

$\sum \vec{N} = \vec{N} + \vec{N}' + \vec{N}''$
 \vec{N}' part of the forces of \vec{N}'
 are counteracted from
 each other

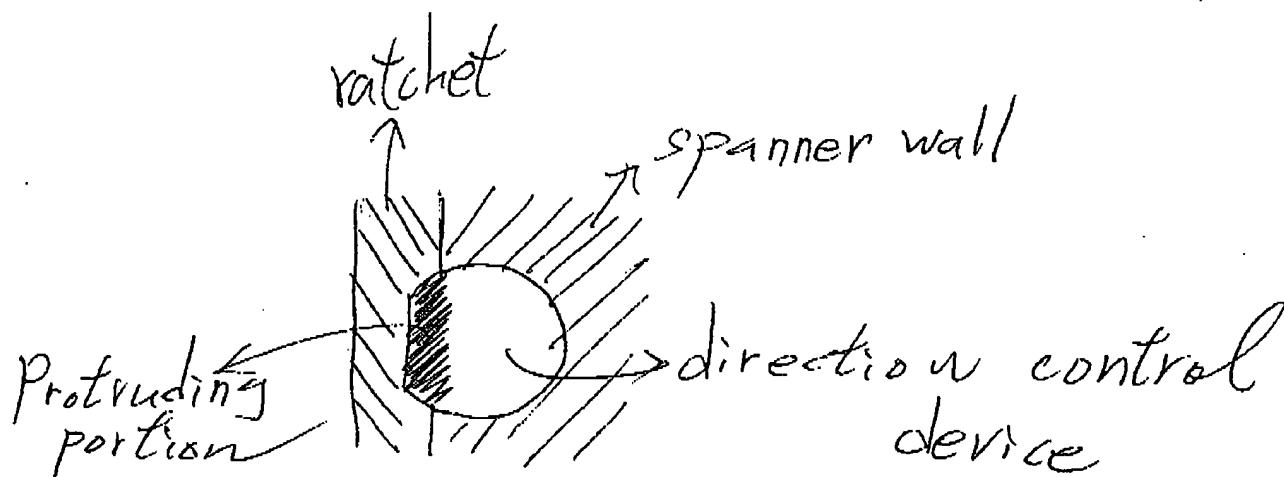


2b

No force normal to
the wall of the ratchet



2c

Drawing for Discussion ① in the Response

The groove has an opening facing toward the ratchet, and part of the direction control unit protrudes from the groove.